



DIVISION OF ENVIRONMENTAL SERVICES

MUNICIPAL WATER QUALITY PROGRAM

Steven San Julian, Chief
MWQP Field Section

Independent Science Board

May 12, 2016



CA Drinking Water Standards

Regulations	Name of Contaminant	MCL / MCLG (mg/L unless noted)	Health Effects of Contaminant
Disinfectants and Disinfection Byproducts	Stage 1 D/DBPR Disinfectants		
	Chlorine	4.0 (as Cl ₂) MRDL / 4 MRDLG	Eye/nose irritation; stomach discomfort
	Chloramines	4.0 (as Cl ₂) MRDL / 4 MRDLG	Eye/nose irritation; stomach discomfort; anemia
	Chlorine Dioxide	0.8 (as ClO ₂) MRDL / 0.8 MRDLG	Anemia; nervous system problems
	Disinfection Byproducts		
	Total Trihalomethanes (TTHMs)	0.080	Cancer risk; potential reproductive system effects; liver/kidney/ nervous system problems
	Haloacetic Acids (HAA5)	0.060	Cancer risk
	Chlorite	1.0 / 0.8	Anemia; nervous system problems
	Bromate	0.010 / 0	Cancer risk
	Total Organic Carbon (TOC)	TT	
	Stage 2 D/DBPR Disinfection Byproducts		
	Total Trihalomethanes (TTHMs)	0.080	Cancer risk; potential reproductive system effects; liver/kidney/ nervous system problems
	Chloroform	/ 0.07	
	Bromodichloromethane (BDCM)	/ 0	
	Bromoform	/ 0	
	Dibromochloromethane (DBCM)	/ 0.06	
	Haloacetic Acids (HAA5)	0.060	Nervous system/liver effects
	Monochloroacetic Acid (MCAA)	/ 0.07	
	Dichloroacetic Acid (DCAA)	/ 0	
	Trichloroacetic Acid (TCAA)	/ 0.02	

Depending on treatment technique (TT), DWTP's can exceed these standards if Delta source waters are high in organic carbon & bromide.



Surface WQ Conditions

Standards for DW, but not for surface water that becomes DW...

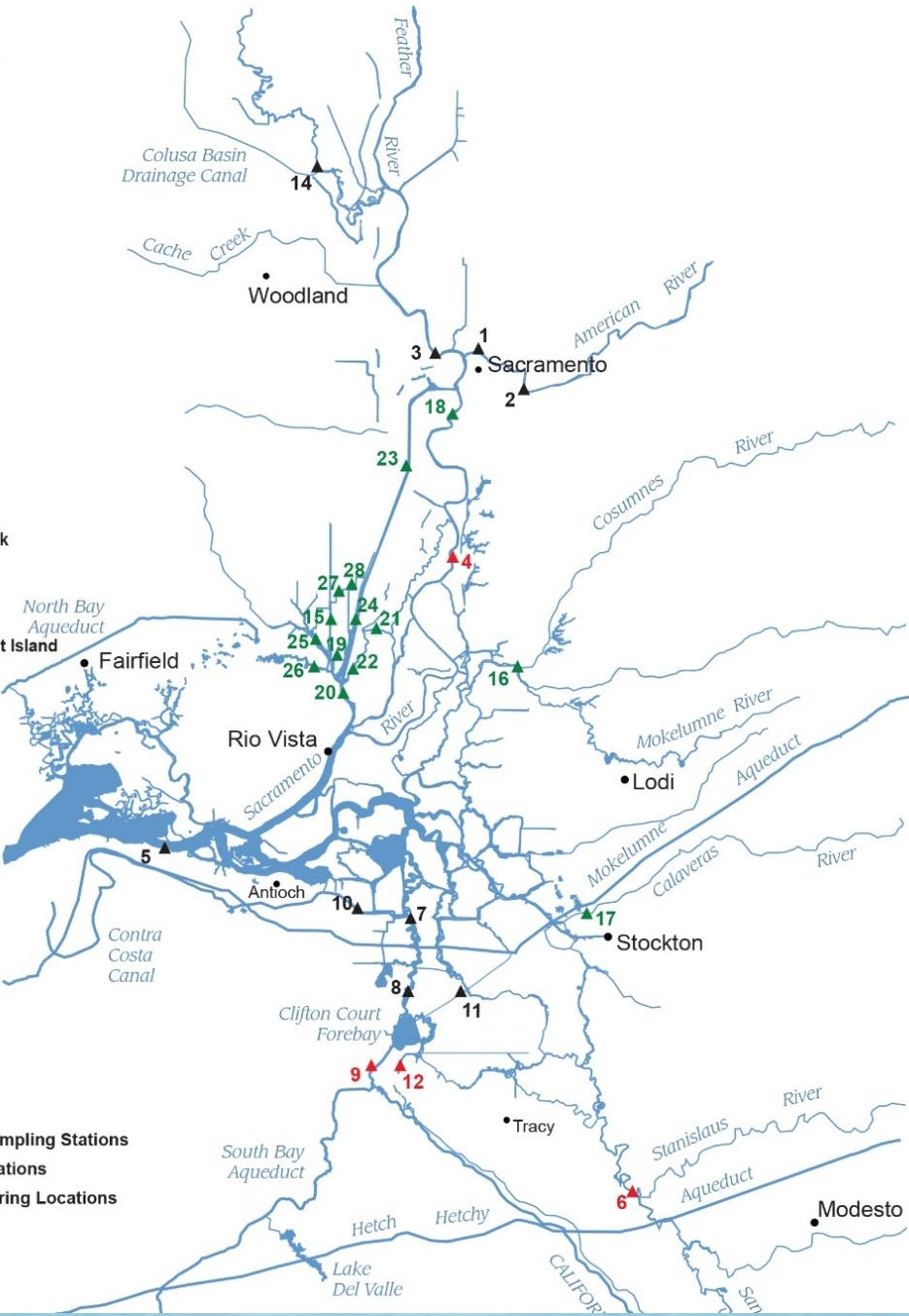




MWQI Discrete and RTDF Monitoring Locations

- 1. Natomas East Main Drainage Canal
- 2. American River at E.A. Fairbairn WTP
- 3. West Sacramento WTP Intake
- 4. Sacramento River at Hood
- 5. Sacramento River at Mallard Island
- 6. San Joaquin River near Vernalis
- 7. Old River at Bacon Island
- 8. Old River at Station 9
- 9. Banks Pumping Plant
- 10. Rock Slough at CCWD Fish Facility
- 11. Middle River at Union Point
- 12. Jones Pumping Plant
- 13. Gianelli Pumping Plant
- 14. Colusa Basin Ag Drain
- 15. Shag Slough at Liberty Island
- 16. Mokelumne River at Benson's Ferry
- 17. Calaveras River at UOP Footbridge
- 18. Sacramento River at Westin Boat Dock
- 19. South tip of Liberty Island
- 20. Cache Slough nr. Ryer Island
- 21. Miner Slough at Highway 84 Bridge
- 22. Miner Slough downstream of Prospect Island
- 23. Lisbon Weir
- 24. Sacramento Shipping Channel
- 25. Upper Cache Slough
- 26. Lindsey Slough at Hastings Cut
- 27. Wildlands Restoration Outlet
- 28. Liberty Cut at Stairstep

- ▲ RTDF and Discrete Sampling Stations
- ▲ Routine, Discrete Locations
- ▲ Special Study, Monitoring Locations







MWQP Data Production Pathway



Carbon Analyzer



Anion Analyzer



YSI sonde (Gianelli)



Instrument Computer

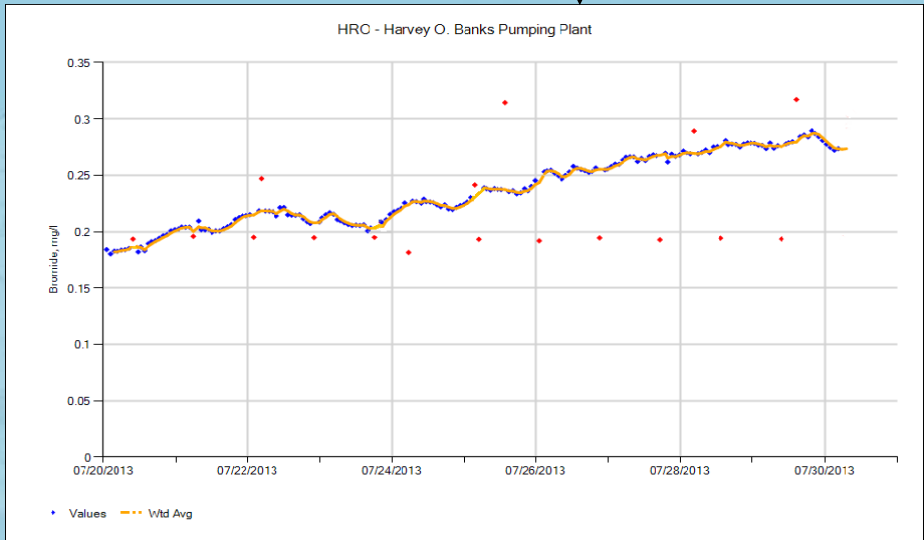
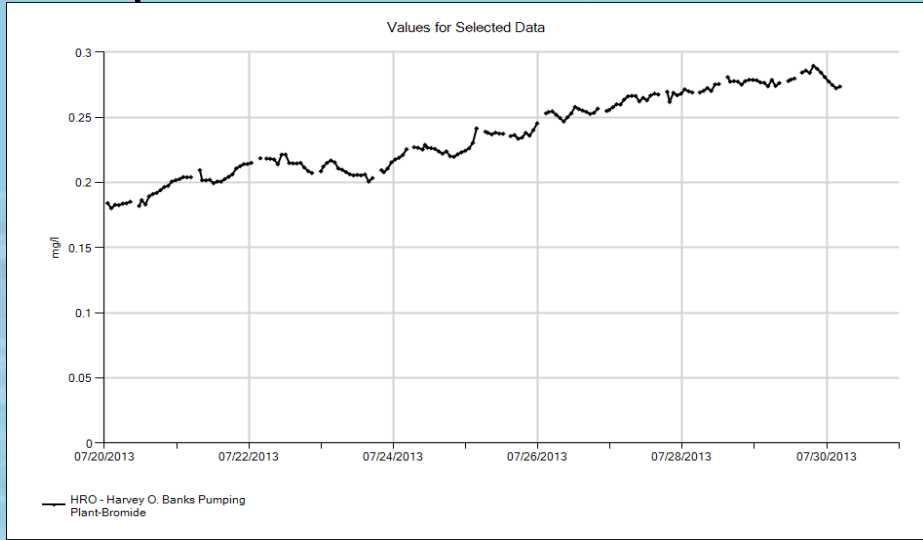
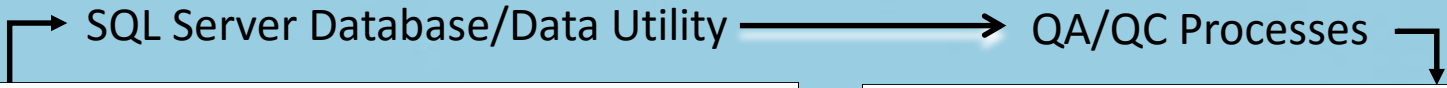


Wireless Cellular Modem

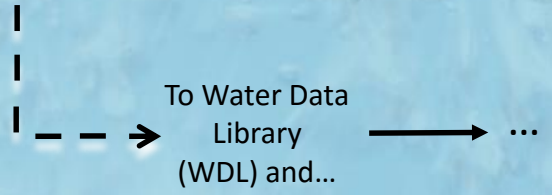
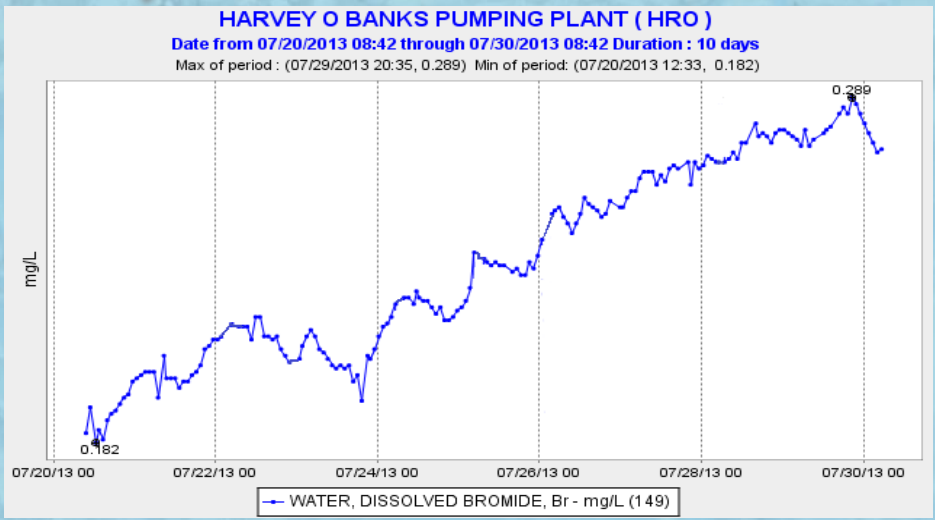


Server

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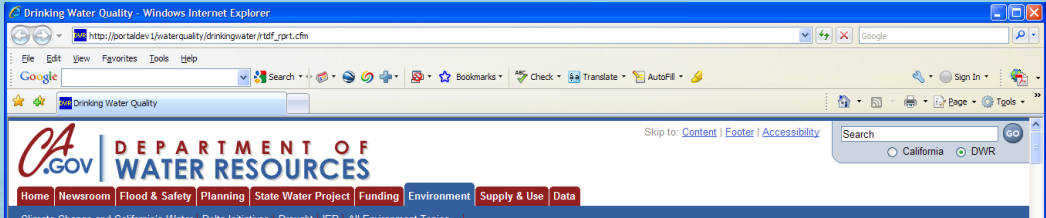
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CDEC



MWQP WQ Report Summary



Drinking Water Quality

→ [Drinking Water Quality](#) → [Real Time Data Forecasting](#)

Dear Interested Parties,

Attached is Volume 6, Issue 37 of our weekly water quality report.

Summary Comments, Observations and Interpretation:
Updated modeled volumetric fingerprints show that throughout the Bay.

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Salinity and Anions: The modeled salinity forecast predicts a decrease in salinity at the Hood. The Sacramento River at Hood increased marginally to 195 µS/cm. The H. O. Banks Pumping Plant mean daily pumping is 3442 cfs.

Anion data: At the H. O. Banks Pumping Plant the reported bromide was relatively unchanged at 0.28 mg/L.

Organic Carbon: Concentrations have been relatively static this month. As of September 13, 2009, in the Sacramento River at Hood mean daily TOC concentration (combustion) was 1.7 mg/L and the mean daily DOC concentration increased to 1.5 mg/L. In the San Joaquin near Vernalis concentrations had decreased in late August; the mean daily TOC concentration was 2.9 mg/L and the mean daily DOC concentration was 2.0 mg/L. At the H. O. Banks Pumping Plant the mean daily TOC concentration was 2.7 and the mean daily DOC concentration was 2.1 mg/L. At the Jones Pumping Plant mean daily TOC concentration decreased slightly to 2.6 mg/L and the mean daily DOC concentration was 2.1 mg/L.

	08/23/09	08/30/09
Sacramento River (Hood)		
Mean Daily Flow, cfs	13626	14006
Salinity (EC), µS/cm	173	173
DOC, mg/L	1.04	1.34
TOC, mg/L	1.48	1.54

	08/23/09	08/30/09
San Joaquin River (Vernalis)		
Mean Daily Flow, cfs	629	660
Salinity (EC), µS/cm	511.3	584.3
DOC, mg/L	2.16	2.10
TOC, mg/L	3.03	3.09
Bromide, mg/L	0.256	0.287

	08/23/09	08/30/09
H.O. Banks Pumping Plant (SWP)		
Mean Daily Pumping, cfs	3442	4137
DOC, mg/L	m	1.93
TOC, mg/L	m	2.44
Specific Conductance, µS/cm	473.5	559.2
Bromide, mg/L	0.3231	0.3900

	08/23/09	08/30/09
C.W. Jones Pumping Plant (DMC)		
Mean Daily Pumping, cfs	4020	4148
Salinity (EC)		
DOC, mg/L	2.03	2.06
TOC, mg/L	2.95	2.42
Specific Conductance, µS/cm		

	08/23/09	08/30/09
Barker Slough Pumping Plant		
Mean Daily Pumping, cfs	81.7	81.2
Salinity (EC)		

	08/23/09	08/30/09
Delta Total Outflow.cfs	3123	3252

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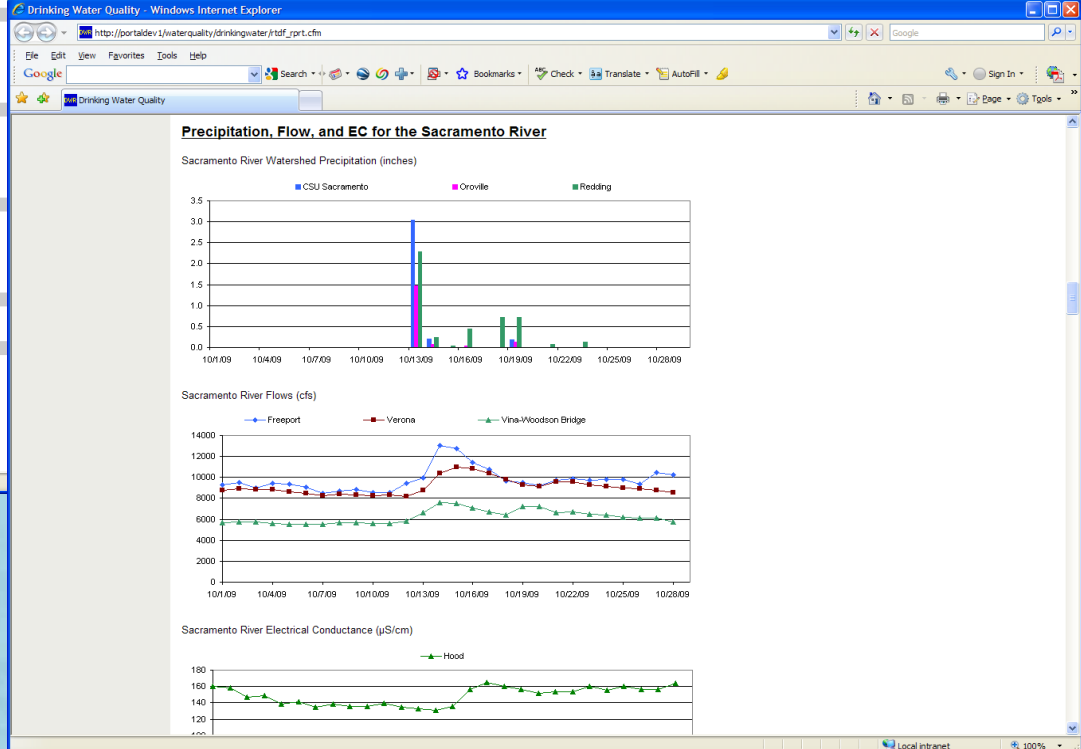
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So, getting the data out provides...
...stakeholders with a vision into the future

- First, by analyzing real-time data for water quality which will eventually reach their facilities.
- Second, by providing models and forecasting tools.
- These give stakeholders the ability to:
 - develop surface water triggers such as
TOC = 4mg/L
EC = 700uS/cm
Br = 0.4mg/L
 - make informed decisions regarding DWTP operations
 - allow stakeholders to optimize operations, balance resources, save time and money = effective efficiency



Questions ?





Contacts

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